Claims

1.   1. A method for accessing a plurality of dynamic random access memory (DRAM) devices in

2.   parallel, each device having the same number of banks, in a parallel packet processor

3.   comprising:

4.   partitioning a data word into data segments;

5.   storing in parallel data segments of a data word into memory banks across a plurality of

6.   DRAM devices;

7.   retrieving the data segments of a requested data word in parallel from the banks of the

8.   DRAM devices; and

9.   reassembling the data segments into the data word.

10. 2. The method of claim 1 further comprising retrieving a plurality of reassembled data words in

11. the order of the sequence that their associated retrieval requests were received.

1.   3. The method of claim 1 wherein the data word has a maximum word size.

1.   4. The method of claim 1 wherein a data word includes a cell of a packet.

1.   5. The method of claim 1 wherein the data word has a fixed word size.

6. The method of claim 1 wherein the data word has a variable word size.

7. The method of claim 1 wherein storing in parallel data segments of a data word into memory banks across a plurality of DRAM devices further comprises determining an in-bank burst length based upon the maximum word size, a total number of banks in the plurality of DRAM devices and the data width of an individual bank and storing the data word in a burst having the in-bank burst length.

8. The method of claim 1 wherein storing in parallel data segments of a data word into memory banks across a plurality of DRAM devices further comprises selecting a bank in each DRAM device for each data segment of the word and storing a data segment of the data word in each selected bank in parallel.

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9. The method of claim 1 further comprising scheduling the storing of the data segments independently on a per device basis.

10. The method of claim 1 wherein retrieving the data segments of a requested data word in parallel from banks across the DRAM devices further comprises:

   determining the starting bank in each DRAM device storing at least one of the data segments of the requested data word; and

   reading each data segment of the data word in each selected bank of in parallel.